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YAMAHA

mLAN

01X Pocket Guide

DIGITAL MIXING STUDIO 01X

THE ONLY 1 OF ITS KIND

What is the 01X?

Up until now you only had two choices when trying to put together a computer based recording studio. One choice was to buy all the different components needed to make up your computer studio from different manufacturers and hoped they worked well together. The other was to buy a proprietary system that had all the necessary studio components in one “all in one package”, but only worked with that company’s proprietary software and hardware protocols. The first choice left you wondering about how to integrate all these different products together and who would support you if you had a problem, and the other left you wondering “Whatever happened to freedom of choice?”

The 01X solves both these challenges in an elegant fashion. Combining all the things you need for a fully functional computer recording studio or live digital mixer in one integrated design.

TOTAL INTEGRATION DIGITAL MIXING STUDIO 01X

Multi channel 24bit 96kHz ultra low latency audio interface for PC and Macintosh

28 channel professional digital mixer with 9 motorized faders

8 channels of balanced inputs, featuring world class 24-bit/96 kHz A/D converters with Mic Preamps on all channels allowing flexible gain scaling

S/P DIF input and output with sample rate conversion and dithering

4-Band parametric EQ and dynamics processing on every mixer input channel

Two 32-bit multi effect processors with over 40 different effects types using proven algorithm technology from Yamaha’s acclaimed 0 series and DM series digital mixing consoles

Up to 24 input recording direct to computer using 01X and mLAN

Built-in Multi Port MIDI interface

Complete connectivity using just one standard IEEE 1394/Firewire/i.Link cable

Expandable to fit your needs using mLAN equipments

Integrated Control Surface protocols to control: Sonar, Cubase, Nuendo, Logic, Digital Performer as well as almost all available VST and Audio Units plug-ins

Huge suite of bundled software including over 700 US dollars of Yamaha VST and Audio Units plug-ins

ANALOG INPUTS

A multi channel computer audio interface and digital mixer that grows with your needs

The 01X features 8 channels of analog inputs, plus digital I/O with sample rate conversion, dithering and the ability to clock slave to incoming digital signals if required.

Two of the inputs (channels 1 and 2) feature XLR connectors with 48V phantom power, but all of the channels feature balanced inputs that accommodate either line or mic level signals.

So you have the flexibility to connect either 8 microphones or 2 mics and 6 line level signals. Channel 8 co-exists with a dedicated Hi-Z input so you can connect a guitar directly to the 01X and, as with any input to 01X, you have the added bonus of 32-bit internal DSP processing to shape the sound just the way you like. Adding an amp simulator to the guitar input is as easy as calling up the effect from the 01X screen, or from the bundled copy of Yamaha's "Studio Manager", and application which Yamaha delivers free with all our professional digital mixing consoles.

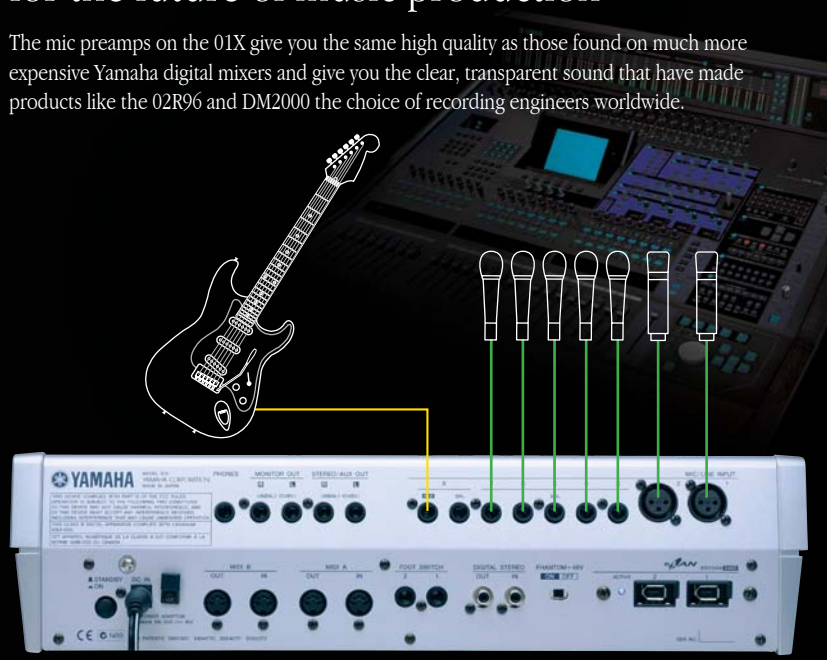
For more analog inputs, you can use the mLAN expansion ports to add up to 24 total simultaneous analog inputs for live mixing or for studio/DAW recording. mLAN being supported by a huge number of industry leading companies, means that 01X can integrate with any other equipment bearing the mLAN logo. Using an ultra low latency driver for ASIO and WDM on Windows as well as integrated OS level core audio supported developed in direct conjunction with Apple Computer, the 01X is also perfect as an audio interface to work with popular software synthesizers. 01X also has hardware direct monitoring with zero latency for tracking and recording in the studio.

** Mac OS X driver available in 2004*

TOTAL INTEGRATION DIGITAL MIXING STUDIO 01X

A true standard for the future of music production

The mic preamps on the 01X give you the same high quality as those found on much more expensive Yamaha digital mixers and give you the clear, transparent sound that have made products like the 02R96 and DM2000 the choice of recording engineers worldwide.



TOTAL INTEGRATION DIGITAL MIXING STUDIO 01X

24-bit/96 kHz CONVERTERS

World class 24-bit/96 kHz A/D converters

The 24-bit/96 kHz analog to digital and digital to analog converters on 01X also share the same heritage of sonic superiority that have made Yamaha digital mixers the number one choice of industry professionals the world over.

24-bit conversion ensures that the digital signal has the widest possible dynamic range, and the superb signal to noise ratio means that you capture the full expressive impact of your performance with the smallest amount of ambient noise.

The ability to record at a wide variety of sampling frequencies means you not only get the highest possible quality recordings, but also match the sampling frequency to your project's final delivery platform.

For recording projects that will end up as CDs, starting and finishing the recording at 44.1 kHz with no sample rate conversion may be the best choice. For DVD audio projects, the 96 kHz capabilities let you record at the finest sound quality imaginable.

DIGITAL MIXER

28 channel flexible bussing digital mixer with 9 motorized faders

There are several moving fader devices on the market that look similar to the 01X, but do not come close to the 01X's capabilities. Some of these are just MIDI controllers with no audio connections at all. Others are MIDI controllers combined with simple computer I/O that simply passes the audio from the analog input to the computer without any option for signal processing or dynamics, pretty much a standard feature on any "real" digital mixer.

The 01X is the first and only device on the market that combines a complete digital mixer with DSP effects for processing audio with flexible multi channel computer I/O via mLAN firewire. Delivering audio over the mLAN connector at a staggering 400Mbps means that the limited channel capabilities offered by USB solutions are a thing of the past. mLAN is designed to grow with your needs and offer a truly professional yet cost effective solution.

The 28 mixing channels can be used for 24 external inputs (the 8 analog input channels plus 16 channels from connected mLAN expansion devices) as well as for processing and mixing DAW audio multi-tracks routed back from the computer via mLAN bi-directional audio interfacing. The flexibility of 01X means that the internal effects can be monitored while recording, and the auxiliary sends on 01X can be used as additional buss outputs to your computer, in as compact a system as you could possibly imagine.

TOTAL INTEGRATION DIGITAL MIXING STUDIO 01X

DSP Accelerated Effects

Each one of the 28 mix channels has Yamaha's legendary 4 band fully parametric EQ with 24 channels of dynamic processing that can be used for compression, limiting, expansion, ducking or gating. The 01X uses the same DSP processing chips used in all Yamaha's current flagship digital mixers, featuring convenient effects libraries allow you to recall detailed settings at the press of a button. The two 32-bit multi effects processors feature a wide variety of studio and instrument effects from Yamaha's renowned library of digital processors including the effects offered on our top of the line digital mixers like the DM2000.

Imagine the host based processing you are saving with being able to run all these essential effects with no load on your computer's CPU. This is one of the key advantages of 01X over any other solution on the market today.

The 01X can be used as the center of a computer studio or as a stand alone digital mixer. In either situation, you have the full capabilities of the 01X's processing available.

CONTROL SURFACE

The 01X supports several industry protocols for control surfaces giving you complete bi-directional communication and control over all the most popular DAW applications including Cubase, Nuendo, Logic, Sonar, and Digital Performer, as well as general support for a much wider range of software applications. You can open and close windows, have full control over all transport functions, mix, pan, EQ control edit and view almost all tasks in your sequencer software as well as edit and control instrument and effect plug-ins all with the immediacy and speed that only real knobs and faders can provide.

The 01X having a full LCD display, also means that all parameters edited by the 01X can be seen on the screen of the 01X, thus allowing you to focus on the mixing and keep your creative workflow running as quickly as possible. The display also opens up a whole host of other possibilities with editing hardware synths directly from the 01X – something impossible to achieve on other "screenless" solutions. Such remote editing capability is already implemented on Yamaha's MOTIF ES and MOTIF-RACK, with many more to follow.

The nine motorized faders give instant, and 100% accurate, visual feedback of any and all of the selected channels in your sequencer, or the current status of the 01X mixer itself. With no compromise in the quality of the faders Yamaha provide, you can be assured that their performance will not degrade over time and have a feel which is second to none. There are also eight knobs for even more hands-on control, and a flip switch allows any parameter controlled by a knob to be "flipped" over to the faders. Faders and channels can be grouped or stereo paired for easier control.

Cubase SX · NUENDO 2.0 media production system · Windows® XP · Macintosh® OS 9.2

TOTAL INTEGRATION DIGITAL MIXING STUDIO 01X

SOFTWARE AND PLUG-INS

The 01X includes a number of VST and Audio Units plug-ins specifically designed by Yamaha to complement the 01X's internal processing. Again using the same world class algorithm designs that make our digital mixers and effect processors the number one choice in studios, these plug-ins deliver exceptional audio quality, and offer huge added value to the 01X itself.

Pitch Fix

Pitch Fix automatically corrects the pitch and tuning of vocal tracks. Formant accurate pitch correction designed by the team which brought you the world's first physical modeling synthesizers, allows the correction or modification of pitch over an extremely wide range with exceptional natural sound. Pitch fix can also create perfect backing vocal parts for your track, just by modifying the lead vocal pitch.

Vocal Rack

Vocal Rack is a multi-effect plug-in specifically designed for recording and processing vocals. It includes a High Pass Filter, Compressor, Enhancer, 3-Band EQ, De-esser, Noise Gate and Delay, all in one easy-to-edit solution.

Final Master

Final Master is a multi band dynamics processor that adds punch and clarity to your productions. It's a must as the final step in creating your final mix and mastering to CD or DVD. Dance/Rock or indeed any form of music is normally mastered at professional mastering suites. With Final Master, the mastering suite is right in your computer.

TOTAL INTEGRATION DIGITAL MIXING STUDIO 01X

Perhaps the most unique of the VST/Audio Units is the 01X Channel Module. This is an exact virtual reproduction of a hardware based channel (4-Band parametric EQ and Dynamics) on the 01X. As the only plug-in of its kind in the world, it offers a revolution in flexibility, and is the defining part of the Total Integration that is 01X.

Settings made on the hardware of the 01X can be controlled and stored on your computer using the 01X's Studio Manager software. The setting stored in the Studio Manager file can be imported into the 01X Channel Strip. Conversely, edits done on the virtual plug-in can also be exported back to the hardware.

Studio Manager for 01X

01X Channel Module

Imagine recording tracks on the 01X, importing all your recording settings into the plug-ins, continuing your mix with just your laptop and then later on exporting all those setting back to the 01X. No other company can or does deliver this kind of complete integration of hardware and software into a total package.

SPECIFICATIONS

The 01X is the ultimate solution. Digital mixing, mic preamps, 24-bit/96 kHz converters, digital effects processors, multi channel mLAN Firewire digital audio interface, a multi port MIDI interface, huge range of quality plug-ins, and a DAW remote unit to edit and control everything... combined into one integrated easy to use, simple to set-up product.
The 01X is truly the Only 1 of its Kind.

■ General Specifications

Internal Signal Processing		32-bit (Accumulator 58-bit)	
Sampling Freqency		Internal, External	Normal Rate: Fs 44.1 kHz (-10 %) – 48 kHz (+6 %) Double Rate: Fs 88.2 kHz (-10 %) – 96 kHz (+6 %)
Frequency Response	Fs 44.1 kHz, 48 kHz	20 Hz – 20 kHz	0 +1/-3 dB, MIC/LINE IN to STEREO OUT (Fs 48 kHz)
	Fs 88.2 kHz, 96 kHz	20 Hz – 40 kHz	0 +1/-3 dB, MIC/LINE IN to STEREO OUT (Fs 96 kHz)
Total Harmonic Distortion		Less than 0.02 %	1 kHz, LINE IN to STEREO OUT
Dynamic Range		103 dB	LINE IN to STEREO OUT
Noise Level		-105 dBV	
Closs Talk		70 dB	
A/D, D/A Converter		24 bit Linear, 128 times over sampling (Fs 44.1, 48 kHz) / 64 time over sampling (Fs 88.2, 96 kHz)	
Mixer Section		28 ch Digital Mixing (Fs 44.1 kHz, 48 kHz) / 18 ch Digital Mixing (Fs 88.2 kHz, 96 kHz)	
Input	MIC / LINE Input	8 ch (Hi-Z input switching possible on channel 8)	
	mLAN Input	16 ch (Fs 44.1 kHz, 48 kHz) / 8ch (Fs 88.2 kHz, 96 kHz)	
	mLAN Monitor Input	2 ch (Stereo x 1) can be cascaded to Monitor Out (Stereo Bus mix balance adjustable)	
	Stereo Input	Stereo x 2 (in combination with Effect Return) (Fs 44.1 kHz, 48 kHz) / Stereo x 1 (Fs 88.2 kHz, 96 kHz)	
	Digital Input	Stereo x 1	
	Digital Cascade Input	Stereo x 1 (can be cascaded to Stereo Bus) (with attenuator)	
Oscillator		Sine (100 Hz, 1 kHz, 10 kHz) / Noise, 0 dB – -96 dB (1 dB step) Stereo Bus, Rec Bus, output to Aux 1–4 possible	
Output	Stereo Bus	2 ch (Stereo x 1)	
	Rec Bus	2 ch (Stereo x 1)	
	Aux Bus	2 ch (Send 1, 2)	
	Effect Bus	2 ch (Send 3, 4) (in combination with Aux 3, 4)	
	mLAN output	24 ch (Fs 44.1 kHz, 48 kHz) / 16 ch (Fs 88.2 kHz, 96 kHz)	
Effector		2 units (43 preset types) (Fs 44.1 kHz, 48 kHz) / 1 unit (Fs 88.2 kHz, 96 kHz)	

TOTAL INTEGRATION DIGITAL MIXING STUDIO 01X

Channel Module	MIC/LINE Input mLAN Input	24 ch (A/D Input x 8 ch, mLAN Input x 16 ch) (Fs 44.1Hz, 48kHz) / 16 ch (Fs 88.2 kHz, 96 kHz) Attenator, Phase, Insert, 4-Band EQ, Dynamics, Aux Send 1 – 4, Level, Pan
	Stereo Input	2 ch (Fs 44.1 kHz, 48 kHz) / 1ch (Fs 88.2 kHz, 96 kHz) Attenator, Phase, 4-Band EQ, Aux Send 1 – 4, Level, Pan
Output Module	Stereo Output	Attenator, 4-Band EQ, Dynamics, Insert, Level, Pan balance
	Rec Bus Output	Dynamics, Insert, Level
	Aux 1 – 4 Output	Level
Interface Section		
mLAN	Audio I/F	18 ch Input / 24 ch Output (Fs 44.1 kHz, 48 kHz), 10 ch Input / 16 ch Output (Fs 88.2 kHz, 96 kHz)
	MIDI I/F	5 ports Input / 5 ports Output (for DAW, MIDI-A, MIDI-B, Studio Manager and Program Change Control)

■ Input & Output Characteristics

Analog Input Characteristics

	Connector in Console	Input Level	Max. Input level	Actual Load Impedance
MIC/LINE INPUT 1, 2	XLR type, Balanced, +48 V ± 3 V Phantom	-46 dB – +4 dB	+18 dB	3 kΩ
MIC/LINE INPUT 3 – 8	TRS Phone, Balanced	-46 dB – +4 dB	+18 dB	3 kΩ
MIC/LINE INPUT Hi-Z	Phone, Unbalanced	-46 dB – +4 dB	+18 dB	500 kΩ

Analog Output Characteristics

	Connector in Console	Output Level	Max. Output level	Actual Source Impedance
MONITOR OUT (L, R)	Phone, Unbalanced	-10 dBv	+4 dBV	10 kΩ
STEREO/AUX OUT (L, R)	Phone, Unbalanced	-10 dBv	+4 dBV	10 kΩ
PHONES	TRS Phone, Unbalanced		100 mW + 100 mW (40 Ω load)	8 – 40 kΩ

Digital Input & Output Characteristics

	Connector in Console	Format	Level	Note
DIGITAL IN, OUT	RCA PIN	IEC-60958 (Consumer use)	0.5 Vpp / 75 Ω	SRC can be switched ON/OFF on Input side, Dither can be switched On/Off on Output side
MIDI IN, OUT A / B	DIN 5 pin	MIDI	-	-
mLAN 1 / 2	IEEE1394 6 pin	IEEE1394 / FireWire	-	-

FOOT SWITCH 1 / 2	PHONE

■ Others

Supplied Accessories	Power Adaptor (PA-300), Owner's Manual set, CD-ROM x 2, mLAN (IEEE 1394) cable
Power Consumption	21 W
Dimensions	453 (W) x 391 (D) x 116 (H) (including channel knobs' height)
Weight	6.2 kg
Operating free-air temperature range	10 – 35 C°

SYSTEM REQUIREMENTS

- IEEE1394 (i.Link) or FireWire port supporting S400 (400Mbps) speed on your Computer is needed. If no interface is present, a suitable PCI / PCMCIA interface may be used.

Windows®
Support OS: Windows XP Professional / Home Edition

	Recommended	Minimum
CPU	Intel® Pentium® 2.2GHz	Intel® Pentium® 1.2GHz Intel® Celeron® 1.7GHz or faster
RAM	512MB or more	384MB or more
HDD	500MB or more free area, High performance HDD	

Macintosh®
Support OS: MacOS 9.2

	Recommended	Minimum
CPU	G4/G3 900MHz or faster	G4/G3 Single 700MHz G4 Dual 450MHz or faster
RAM	512MB or more	320MB or more
HDD	170MB or more free area, High performance HDD	

- System requirements above have been tested with standard DAW software and bundled software effects (subject to your DAW settings, and enviroment of you).
- Detailed information about system requirements (including Recommended PCMCIA and PCI)
  → **http://www.yamahasynth.com**

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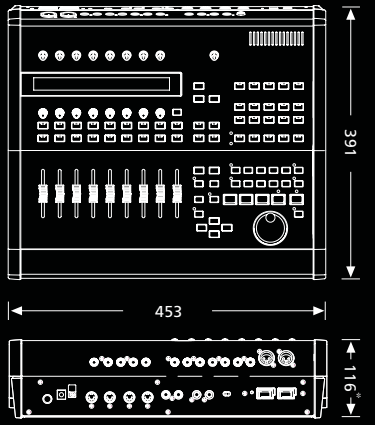
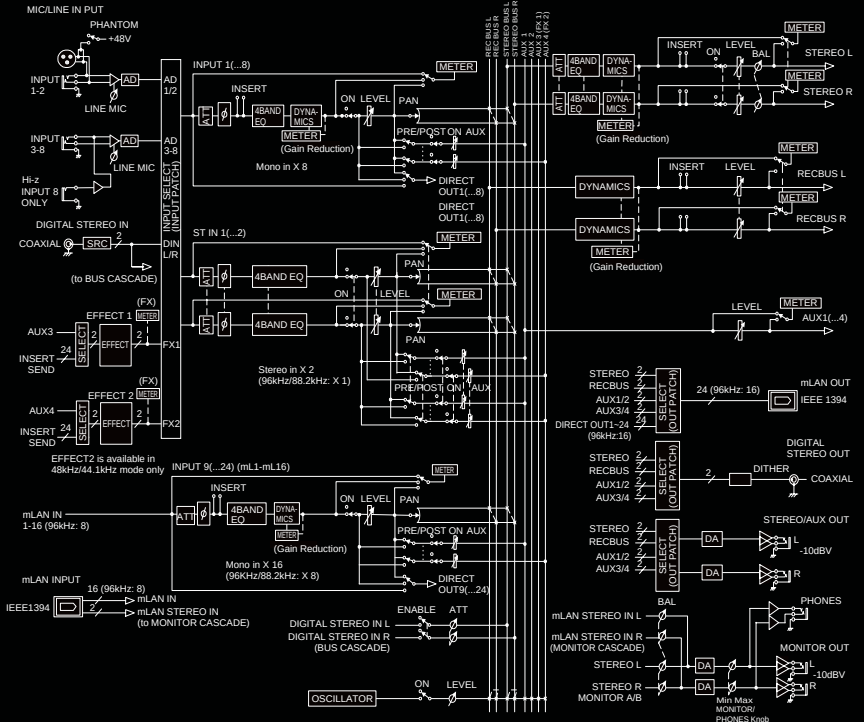
DIMENSIONS



** including channel knobs' height*

01X BLOCK DIAGRAM



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TOTAL INTEGRATION DIGITAL MIXING STUDIO 01X

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